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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
HOLLIDAY, JAIME MICHELE	

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2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,346	COSTA ET AL.	
	Examiner	Art Unit	
	JAIME M. HOLLIDAY	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

Applicant's arguments filed June 16, 2010 have been fully considered but they are not persuasive.

Applicant basically argued that the prior art of record, Guimont et al. in view of Benveniste, teach allocation "temporarily during a first period," since neither reference has a specified time period. Further, Applicants argue that the Guimont reference is missing more than the limitation "that the sub-carriers are allocated during different time periods," as stated in the previous office action.

Examiner respectfully disagrees with the preceding arguments. The statement that generalizes the claim features that the primary reference does not discloses, in this case the Guimont reference, is just a general statement that summarizes the limitation not taught, which is then clearly taught by the secondary reference, in this instance, Benveniste. Further, the claim merely states that there is at least a first and second time period, and dependent claim 29 further narrows claim one to define that the first time period is of a specified duration, such as at least one OFDM frame. The initialization phase of Benveniste, clearly reads on the "first time period," and after the initialization phase, the channels are reassigned, reading on the "second time period."

Applicant also argues that there is no mention that each subset has at least two radio cells.

Examiner respectfully disagrees, Guimont et al. teach and suggest that available frequencies in the cellular frequency band (frequency band) are divided in accordance with the frequency plan (allocated) into ***frequency groups*** 14 (***sub-carriers***), with the

frequency groups assigned amongst the ***cells*** 10 of each ***cluster*** 12 (***sub-set of cells***; fig.1 {*see items* ***12*** *and* ***14****; the E subset is assigned to two cells*}) such that the radio frequencies of the cellular band are reused in each cluster (making sub-carriers available to radio cells; assigning each of the sub-carriers only to a subset of the radio cells), (abstract, fig. 1, col. 4 lines 19-40).

Therefore, in view of the preceding arguments, Examiner maintains previous rejections, and this action is made **FINAL**.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. **Claims 15, 16, 18-20, 27 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Guimont et al. (6,052,593)** in view of **Benveniste (US 6,990,348 B1)**.

Consider **claim 15**, Guimont et al. clearly show and disclose a method for managing radio resources of a frequency band having sub-carriers in a cellular radio communications system configured as a multi-carrier system (proposal for a revision in the frequency plan assignment; the frequencies of the proposal are evaluated to ensure that sufficient frequencies having appropriate operating modes [col. 2 lines 43-55]), comprising: allocating the sub-carriers to the radio cells, to make the sub-carriers available during a first time period to each radio cells for transmission of information; and allocating the sub-carriers to the radio cells, the sub-carriers being allocated by assigning each of the sub-carriers only to a subset of the radio cells including at least two radio cells for transmission of the information (available frequencies in the cellular frequency band are divided in accordance with the frequency plan into frequency groups **14**, with the frequency groups assigned amongst the cells **10** of each cluster **12** such that the radio frequencies of the cellular band are reused in each cluster [abstract, fig. 1, col. 4 lines 19-40] *wherein a frequency proposal is implemented during the first time period, and only cells that need a frequency proposal revision are updated.*)

However, Guimont et al. fail to specifically disclose that the sub-carriers are allocated during different time periods.

In the same field of endeavor, Benveniste clearly shows and discloses temporarily during a first time period allocating the sub-carriers to the radio cells (during

initialization phase {*first time period*}, each cell is assigned a control channel and at least one traffic channel [fig. 2, col. 6 lines 5-10]) and allocating the sub-carriers to the radio cells during a second time period (determining signal-to-interference ratios between the base station and the mobile stations as a communication quality metric and/or determining signal attenuation between the base stations on which channel re-use criteria are derived; selectively reassigning channels to the base station based on said improved re-use criteria [fig. 2, col. 10 lines 10 lines 9-34]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to selectively reassign channels to a call after initial allocation as taught by Benveniste in the method of Guimont et al., in order to efficiently create or revise a frequency plan.

Consider **claim 16**, Guimont et al., as modified by Benveniste, clearly show and disclose the claimed invention **as applied to claim 15 above**, and in addition, Guimont et al. further disclose assigning makes at least one of the sub-carriers available to exactly one radio cell in the at least two radio cells (each cell 10(1) in the service area is assigned use of radio frequencies of the cellular band in frequency group A [fig. 1, col. 4 lines 20-30]).

Consider **claim 18**, Guimont et al., as modified by Benveniste, clearly show and disclose the claimed invention **as applied to claim 15 above**, and in addition, Guimont et al. further disclose assigning makes at least one of the sub-carriers available to exactly one radio cell in the at least two radio cells (adjacent cells are not assigned to use the same frequency by the frequency plan [fig. 1, col. 1 lines 45-50]).

Consider **claim 19**, Guimont et al., as modified by Benveniste, clearly show and disclose the claimed invention **as applied to claim 15 above**, and in addition, Guimont et al. further disclose assigning of the sub-carriers is to n radio cells, making assigned sub-carriers available to at least one radio cell have a frequency spacing of n sub-carriers (in a cell structure having seven cells **10** per cluster **12**, there are seven frequency groups **14** identified and differentiated from each other by the alphabetic labels "A" through "G" corresponding to the cells 10(1)-10(7), respectively. Each frequency group 14 is divided into a plurality (n) of sub-frequency groups 14(1)-14(n). Thus, frequency group A includes sub-frequency groups A(1) through A(n), frequency group B includes sub-frequency groups B(1) through B(n), and so on up through the sub-frequency groups G(1) through G(n) of frequency group G [col. 4 lines 20-40]).

Consider **claim 20**, Guimont et al., as modified by Benveniste, clearly show and disclose the claimed invention **as applied to claim 15 above**, and in addition, Guimont et al. further disclose assigning makes at least some adjacent sub-carriers in the frequency band available to at least one radio cell (it is known that interference does occur in cellular systems like that previously described. One aspect of this interference originates from adjacent frequency communications occurring simultaneously in cells 10 of the same or other clusters 12 (i.e., adjacent channel interference) [col. 5 lines 12-20]).

Consider **claim 27**, Guimont et al. clearly show and disclose a radio communication system of cellular construction configured as a multi-carrier system using at least one frequency band having sub-carriers for transmission of information

(proposal for a revision in the frequency plan assignment; the frequencies of the proposal are evaluated to ensure that sufficient frequencies having appropriate operating modes [col. 2 lines 43-55]), comprising at least two radio cells ([fig. 1]); at least one control device assigning the sub-carriers of the at least one frequency band to said at least two radio cells during a first time period to make all if the sub-carriers available to each radio cell for transmission of information; and each of the sub-carriers is available to a subset of the at least two radio cells for transmission of information (available frequencies in the cellular frequency band are divided in accordance with the frequency plan into frequency groups **14**, with the frequency groups assigned amongst the cells **10** of each cluster **12** such that the radio frequencies of the cellular band are reused in each cluster [abstract, fig. 1, col. 4 lines 19-40] *wherein a frequency proposal is implemented during the first time period, and only cells that need a frequency proposal revision are updated.*)

However, Guimont et al. fail to specifically disclose that the sub-carriers are allocated during different time periods.

In the same field of endeavor, Benveniste clearly shows and discloses during a first time period to make all of the sub-carriers temporarily available to each radio cell for transmission of information cells (during initialization phase {*first time period*}, each cell is assigned a control channel and at least one traffic channel [fig. 2, col. 6 lines 5-10]), and that during a second time period temporarily each of the sub-carriers is available (determining signal-to-interference ratios between the base station and the mobile stations as a communication quality metric and/or determining signal attenuation

between the base stations on which channel re-use criteria are derived; selectively reassigning channels to the base station based on said improved re-use criteria [fig. 2, col. 10 lines 10 lines 9-34]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to selectively reassign channels to a call after initial allocation as taught by Benveniste in the method of Guimont et al., in order to efficiently create or revise a frequency plan.

Consider **claim 28**, Guimont et al. clearly show and disclose a control device of a radio communication system of cellular construction, that is configured as a multi-carrier system having at least two radio cells with at least one frequency band having sub-carriers for transmission of information in the at least two radio cells (proposal for a revision in the frequency plan assignment; the frequencies of the proposal are evaluated to ensure that sufficient frequencies having appropriate operating modes [fig. 1, col. 2 lines 43-55]), comprising: means for assigning the sub-carriers of the at least one frequency band to the at least two radio cells during a first time period so that the sub-carriers are available to each radio cell for the transmission of the information; means for assigning the sub-carriers of the at least one frequency band among the at least two radio cells so that each of the sub-carriers is available to a subset of the at least two radio cells for the transmission of the information (available frequencies in the cellular frequency band are divided in accordance with the frequency plan into frequency groups **14**, with the frequency groups assigned amongst the cells **10** of each cluster **12** such that the radio frequencies of the cellular band are reused in each cluster

[abstract, fig. 1, col. 4 lines 19-40] *wherein a frequency proposal is implemented during the first time period, and only cells that need a frequency proposal revision are updated.*)

However, Guimont et al. fail to specifically disclose that the sub-carriers are allocated during different time periods.

In the same field of endeavor, Benveniste discloses means for temporarily assigning the sub-carriers, during a first time period so that the sub-carriers are temporarily available to each radio cell (during initialization phase {*first time period*}, each cell is assigned a control channel and at least one traffic channel [fig. 2, col. 6 lines 5-10]), and means for temporarily assigning the sub-carriers, during a second time period so that each of the sub-carriers is temporarily available (determining signal-to-interference ratios between the base station and the mobile stations as a communication quality metric and/or determining signal attenuation between the base stations on which channel re-use criteria are derived; selectively reassigning channels to the base station based on said improved re-use criteria [fig. 2, col. 10 lines 10 lines 9-34]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to selectively reassign channels to a call after initial allocation as taught by Benveniste in the method of Guimont et al., in order to efficiently create or revise a frequency plan.

3. **Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Guimont et al. (6,052,593)** in view of **Benveniste (US 6,990,348 B1)**, and in further view of **Wang et al. (US 6,917,580 B2)**.

Consider **claim 17**, and **as applied to claim 16 above**, Guimont et al., as modified by Benveniste, clearly show and disclose the claimed invention except that the all the sub-carriers are assigned to exactly one cell.

In the same field of endeavor, Wang et al. clearly show and disclose assigning makes each of the sub-carriers available to exactly one radio cell in the at least two radio cells (a cellular communication system for wireless telecommunication on the basis of an OFDM scheme; three cells (C_1 C_2 C_3) are divided into three sectors. The entire frequency band of the wireless cellular OFDM system is also divided into three subbands. Within one cell (C_1 C_2 C_3) subband is allocated to each sector [abstract, col. 1 lines 53-55]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to designate subbands to the sectors in one cell as taught by Wang et al. in the method of Guimont et al., as modified by Benveniste, in order to efficiently create or revise a frequency plans.

4. **Claims 21 and 22** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Guimont et al. (6,052,593)** in view of **Benveniste (US 6,990,348 B1)**, and in further view of **Li et al. (US 2002/0147017 A1)**.

Consider **claim 21**, and **as applied to claim 15 above**, Guimont et al., as modified by Benveniste, clearly show and disclose the claimed invention except that the all the sub-carriers are allocated using an algorithm that includes a code.

In the same field of endeavor, Li et al. clearly show and disclose assigning of the sub-carrier takes place in accordance with an algorithm that includes use of a code (a procedure of selective sub-carrier allocation including algorithms used by a base station for sub-carrier selections these algorithms are conceived to be a self-consistent sequence of steps leading to a desired results; steps are those requiring physical manipulations of physical quantities that take the form of electrical or magnetic signals that are referred to as bits, values, elements, symbols, characters, terms, numbers, or the like [paragraphs 2, 24, 31, 33]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use an algorithm for sub-carrier allocation as taught by Li et al. in the method of Guimont et al., as modified by Benveniste, in order to efficiently create or revise a frequency plans.

Consider **claim 22**, the combination of Guimont et al. and Benveniste, as modified by Li et al., clearly show and disclose the claimed invention **as applied to claim 21 above**, and in addition, Li et al. further disclose assigning makes the sub-carriers used by base stations of particular radio cells available for transmission of broadcast information (base station assigns desirable clusters to the subscriber making the request; a cluster allocation and load scheduling controller **1301**, in the base station, collects all the necessary information for making the decision on cluster allocation, and

informs the subscribers about the decisions through control signal channels [paragraphs 88, 89]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to inform the subscribers of cluster allocation as taught by Li et al. in the method of Guimont et al., as modified by Benveniste, in order to efficiently create or revise a frequency plans.

5. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of **Guimont et al. (6,052,593)** and **Benveniste (US 6,990,348 B1)**, in view of **Li et al. (US 2002/0147017 A1)**, and in further view of **Frodigh et al. (5,726,978)**.

Consider **claim 23**, and **as applied to claim 22 above**, the combination of Guimont et al., and Benveniste, as modified by Li et al., clearly show and disclose the claimed invention except that the information sent over the channel is used for handovers.

In the same field of endeavor, Frodigh et al. clearly show and disclose broadcast information is used to decide on handovers (system includes a dedicated control channel (DCCH) that is both an uplink and a downlink channel for transmitting control information for handovers [col. 4 lines 26-30, col. 7 lines 30-32]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use control information for handovers as taught by Frodigh et al. in the method of Guimont et al and Benveniste, as modified by Li et al., in order to efficiently perform handovers in an OFDM system.

6. **Claims 24-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of **Guimont et al. (6,052,593)** and **Benveniste (US 6,990,348 B1)**, in view of **Li et al. (US 2002/0147017 A1)** and **Frodigh et al. (5,726,978)**, and in further view of **Obayashi (US 2002/0082016 A1)**.

Consider **claim 24**, and **as applied to claim 23 above**, the combination of Guimont et al. and Benveniste, as modified by Li et al. and Frodigh et al., clearly show and disclose the claimed invention except that the amplitudes of the control information are determined.

In the same field of endeavor, Obayashi disclose determining amplitudes of the broadcast information in subscriber stations receiving the broadcast information (a mobile communication terminal apparatus which performs radio communication with base stations and selects the base station optimal for a handover in advance based on the electric field intensity values of several previous times as well as the weakest value, from the monitor result of the pilot channel [abstract and paragraph 92]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to the intensity of the pilot as taught by Obayashi in the method of Guimont and Benveniste, as modified by Li et al. and Frodigh et al., in order to efficiently perform handovers in an OFDM system.

Consider **claim 25**, the combination of Guimont et al., Benveniste and Li et al., as modified by Frodigh et al. and Obayashi, clearly shows and disclose the claimed invention **as applied to claim 24 above**, and in addition, Obayashi further discloses

determining a metric of the amplitudes of the broadcast information transmitted from one of the base stations on the sub-carriers available to the one of the base stations (a base station for handover is selected based on the average height of the electric field intensity values from the monitor result of the pilot channel [abstract and paragraph 92]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the measurement of intensity during a handover as taught by Obayashi in the method of Guimont and Benveniste, as modified by Li et al. and Frodigh et al., in order to efficiently perform handovers in an OFDM system.

7. **Claims 26 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Guimont et al. (6,052,593)** in view of **Benveniste (US 6,990,348 B1)**, and in further view of **Ma et al. (US 2004/001429 A1)**.

Consider **claim 26**, and **as applied to claim 15 above**, Guimont et al., as modified by Benveniste, clearly show and disclose the claimed invention except that the system is an OFDM system.

In the same field of endeavor, Ma et al. clearly show and disclose cellular radio communications system is an orthogonal frequency division multiplexing system (a wireless terminal communicates over a shared OFDM band [paragraph 10]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have sub bands of an OFDM band as taught by Ma et al. in the method of Guimont et al., as modified by Benveniste, in order to efficiently create or revise a frequency plan.

Consider **claim 25**, the combination of Guimont et al. and Benveniste, as modified by Ma et al., clearly shows and disclose the claimed invention **as applied to claim 24 above**, and in addition, Ma et al. further discloses wherein the first time period is a predetermined number of one or more orthogonal frequency division multiplexing frames (FIG. 2 shows an example of time-frequency resource allocation for two different OFDM modes; symbol periods ti through ti+9 {first time period}, a first allocation is shown with the first frequency band 51 assigned to Mode-1 traffic and the second frequency band 53 assigned to Mode-2 traffic; symbol duration ti+10, ti+11, the entire OFDM band 50 is dedicated to Mode-2 traffic [fig. 2, paragraphs 124, 125] *wherein the symbols are OFDM symbols.*)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to measure allocation periods in OFDM symbols as taught by Ma et al. in the method of Guimont et al., as modified by Benveniste, in order to efficiently create or revise a frequency plan.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAIME M. HOLLIDAY whose telephone number is (571)272-8618. The examiner can normally be reached on Monday through Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jaime M Holliday/
Examiner, Art Unit 2617

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617